

Ideation Phase Literature Survey

Date	26 September 2022
Team ID	PNT2022TMID31589
Project Name	Plasma Donor Application

1)

Title:

Developing a plasma donor application using function-as-a-service in AWS

Authors:

Aishwarya R Gowri

Description:

Plasma is the liquid portion of blood and more than 55% of human blood is plasma. Plasma is used to treat a variety of infections and is one of the oldest methods known as plasma therapy. Plasma therapy is a procedure in which blood is donated from a recovered patient to produce antibodies that fight infections. An application for plasma donors is developed using AWS services. Services used are AWS Lambda, API Gateway, DynamoDB, and AWS Elastic Compute Cloud. Using these AWS services eliminates the need to configure servers, reduces associated infrastructure costs, and helps enable serverless computing. For example, during the COVID-19 crisis, the demand for plasma increased significantly as no vaccine was found to treat infected patients. With plasma therapy, the recovery rate was high, but the number of donors was very low and it was very important to have information about plasma donors. It is useful because it saves time and helps users track the information they need about their donors.

Year:

2020

Technologies:

AWS

2)

Title:

Instant plasma donor recipient connector web application

Authors:

Kalpana Devi Guntoju, Tejaswini Jalli, Sreeja Uppala, Sanjay Malliseti

Description:

The world is suffering from the COVID-19 crisis and no vaccine has been found yet. But there is another scientific way that donating plasma from recovered patients could reduce mortality or help those affected by COVID-19. In the absence of an approved antiviral treatment regimen for fatal COVID-19 infection, plasma therapy is an experimental approach to treat COVID-19-positive patients and help them recover more quickly. Treatment is considered competent. In the referral system, donors who want to donate plasma can donate by uploading their COVID-19 certificates, blood banks can see donors who have uploaded their certificates and make requests to donors, hospitals can register/login to find what you need.

Year:

2022

Technologies:

HTML, CSS, Java script, Database

3)

Title:

Nearest blood & plasma donor finding

Authors:

Nayan Das MD. Asif Iqbal

Description:

The need for blood is a major concern worldwide in the current situation. Due to the lack of blood, people were unable to save themselves, their friends and family. A bag of blood can save a precious life. Statistics show that major surgeries, traffic accidents, blood disorders such as anemia and hemophilia, and acute viral infections such as dengue fever require vast amounts of blood each year. About 85 million people need one or more blood transfusions for treatment. Some countries, such as Switzerland (113 out of 1,000) and Japan (70 out of 1,000), have very promising numbers of voluntary blood donors per 1,000 population, while India has 4 out of 1,000, Some countries, such as Bangladesh with 5 out of 1,000, have had less than satisfactory results. Recently, the COVID-19, a life-threatening virus, has spread around the world, making the elderly and those with pre-existing medical conditions more vulnerable. They need plasma to cure disease. The goal is to build a platform with clustering algorithms that help provide the fastest solution for finding blood or plasma donors. Locate nearest blood or plasma donors from the same group in a specific region more quickly and efficiently.

Year:

2021

Technologies:

Machine Learning

4)

Title:

Convalescent Plasma Therapy: Data driven approach for finding the Best Plasma Donors

Authors:

Dr.G.Aghila, M N Noorshidha

Description:

The paper points out the complexities and inconveniences in finding a donor for Convalescent Plasma therapy. It shows how the problem can be solved in a data-driven way. The solution is based on classification model to predict whether the donor has the threshold antibody level for donation and regression model that can predict which donor can have a better antibody titers in his plasma based on his/her clinical history. The proposed data-driven method lets the concerned people find who is eligible for donation and among them who has the efficient antibody level beforehand. As the hospital authorities has the clinical history of all the COVID-19 cured patients, they can make use of the system to predict who has an efficient antibody level and make a smart approach by contacting them for donation if they consent. This can prevent wastage of time, cost, effort and test kits on every random donor, especially, in emergencies. This simulated the data and built different Classification and Regression models. Although the results look satisfactory to some extent, valid conclusions cannot be drawn due to the unavailability of authentic data. Even though the system is proposed in the context of COVID-19, the methodology can be utilized for any future virus outbreaks too. Upon the availability of real data, the system could be implemented and optimized to produce the best results.

Year:

2021

Technologies:

Machine Learning

5)

Title:

Covid-19 plasma monitoring based on clustering a large set of recovered patient data

Authors:

Al-Rammahi Ali. A., Sari Farah, Al-Jelaihawi. Fahad. G

Description:

With the increasing number of COVID-19 cases, vast amounts of data need to be pooled and sorted to be more useful in tracking the plasma of patients recovering from the disease. Therefore, in addition to comparing blood types with other patients, it is conceivable that plasma can be donated after recovery from illness after more than 28 days, but between (1-28) days it should be noted that there are different values. Thus, clustering using the standard algorithm (fuzzy C-means), it turns out that they do not give detailed results, and searching at a speed of (20-28) days helps you keep track. Therefore, we need a complex algorithm that combines the above steps with a hierarchical aggregation algorithm.

Year:

2020

Technologies:

Machine Learning

6)

Title:

Determinants of plasma donation

Authors:

Antoine Beurel , Florence Terrade

Description:

A major contribution of the humanities to understanding whole blood donation behavior has been to investigate individual motivations and inhibitors to blood donation. Although whole blood donation has been extensively studied over the past 60 years, little is still known about plasma donation in voluntary and unpaid settings. However, the demand for plasma-derived products has grown exponentially in recent years, and blood collection facilities must adapt to meet that demand. The purpose of this article is to identify the main motivations and inhibitors of whole blood donation and it is important to compare with what is already known about plasma donation. Current findings show similarities between the two behaviors, but differences that indicate the need for further research on plasma donation.

Year:

2017

Technologies:

Python